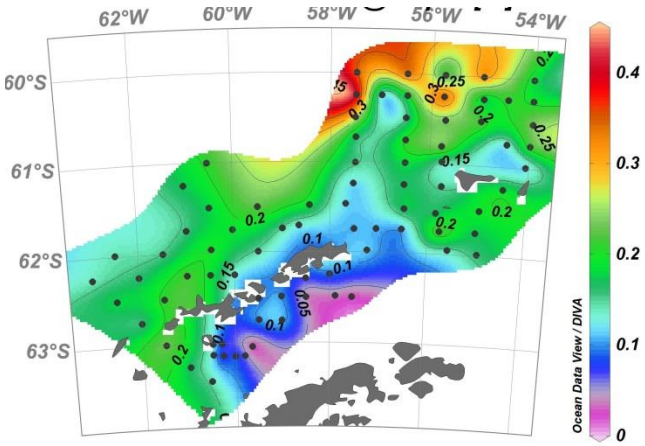
Week 4 Situation Report RVIB Nathaniel Palmer, Off Livingston Island, Antarctica



Into the final week of the 2013 AMLR Winter Survey, we completed the Elephant Island grid on the night of 30 August, and proceeded to enter Admiralty Bay in order to calibrate the acoustics transducers aboard the ship. Early in the morning on 1 September, we found that half the bay was completely covered in ice that had been formed in the Bay and also transported into Bay during the storms in Week 2. Large early season first year ice was interspersed with late season ice. Attempts to enter other inlets to calibrate were also futile, so we proceeded to the West Shelf to sample the final 25 stations of the survey. We continued to have unusually calm conditions with several days of sub-5 knot winds and clear skies. Ice conditions were dominated by progressively smaller pancake and thinner first year ice. At most seaward stations, ice coverage exceeded 30%, but with large areas of open water.

Within this survey area, we collected a number of interesting samples. Water column chlorophyll-*a* concentrations were high, and the ice in many areas was a golden yellow, indicative of high algal biomass. However, little krill was observed in offshore areas, and instead was found mostly associated with coastal areas, and was observed in the acoustic record as continuous bands of acoustic scatter at between 30 and 50 m depth. Length frequency distributions were similar to those of both the South Area and the Elephant Island Area, suggesting the demographic patterns were similar among areas. Of particular note was the observation of a single Ross seal (*Ommatophoca rossii*) found offshore in the ACC.

As time became short we eliminated 5 stations from the West Area, and finished the season early on September 6th as we transited north of 60 degrees south, still in the ice. The northward transit was calm, and we arrived in Punta Arenas on Monday, 9 September, at 0500.

In all, the survey occupied 88 (hydrographic and net) stations over an area of 130 000 km^2. We were able to conduct more than 2,000 nmi of bird and mammal observations, we collected ice core data from 10 floes, and we were able to determine the distribution and demographic patterns of krill and other zooplankton.

From the RVIB Nathaniel B. Palmer

Christian Reiss

Included photo: Survey-wide water-column chlorophyll-a concentration (ug L^{-1}) at 15-m showing the significant and variable winter-time productivity available to Antarctic krill.